

CalNex Forecast Notes - Friday, June 18, 2010

Anticipated Flights

NOAA P3

Fri: Northern SJV flight with G-1 comparison

Sat:

NOAA Twin Otter

Fri: Central Valley flight

Sat: Flight likely

CARES DOE G-1 and NASA B200

Fri: G-1 comparison with P3 in N SJV; B-200 flight

Sat: Flights likely

Sun: No flights, if fly Saturday

Local Features

Saturday

- high background CO & O3 descending over SoCal
- SF/Sac emissions transport to N Sac Valley (west of Cool)
- Southern Sac Valley eddy Sat am centered between Davis and Fairfield
- SJV NW nocturnal jet Friday night into Saturday morning
- LA outflow to E deserts

Sunday

- high background CO & O3 descending over SoCal
- morning NW winds clear SF emissions from Sac Valley and carry fresh Sac and SF emissions to SJV

Synoptic Overview for California - Dennis King (dking@arb.ca.gov)

Friday June 18

- Trough dominates CA weather
- On-shore flow over the entire coast line
- Deep marine layer along the coast
- Southwesterly to westerly transport flow in the interior
- Strong surface winds in most areas except Southern SJV

Saturday June 19

- Trough remains in place over CA
- On-shore flow continues over the entire state
- Marine layer over coast should remain deep
- Gradient relaxes slightly
- Transport winds continue southwesterly to westerly, weaken
- Interior winds will be similar but will weaken

Sunday June 20

- Axis of the trough moves inland
- Influence of trough continues, but becomes more baggy
- Light winds over state in the early morning
- N CA winds turn northerly in the Sac Valley as trough axis moves east
- Winds along N Coast turn northwesterly
- S CA winds remain southwesterly to westerly
- SJV winds turn northerly

Beyond...

- Baggy trough remains in place into next week
- Gradients continue to relax resulting in a general weakening of the winds for all areas

Large Scale Transport Notes - Brad Pierce (brad.pierce@noaa.gov)**LA/SAC AIRNOW Site Comparison**

Riverside reached USG O3 AQ. Good/Moderate Riverside PM2.5 AQ during FX period

Good SAC O3 and Moderate SAC PM2.5 AQ during FX period

O3/PM2.5 analysis underestimates at Riverside. PM2.5 overestimated at SAC

LA/SF AIRNOW Ensemble

LA Long-range transport shows North/South Bifurcation for ensembles with main transport to NE for ensembles ending Sun and SE for ensembles ending Mon.

Transport along CA coast for SF ensembles ending Sat. North/South dispersion increases for ensembles ending Sun/Mon

5km RDF FX 00Z 06/19 (Fri Afternoon)

IC/STE polluted airmass over northern CA/NV. Clean airmass over Southern CA

500m RDF FX 00Z 06/19 (Fri Afternoon)

New low CO/background O3 air over Southern CA. Low O3 over Northern CA. Elevated CO from remote fires onshore over Central CA. Moderate (5-10ppbv/day) background O3 P-L over LA&SF

500m RDF FX 00Z 06/20 (Sat Afternoon)

New high O3/CO air over Central CA. Low O3 over Northern CA. Moderate (5-10ppbv/day) background O3 P-L over LA&SF

500m RDF FX 00Z 06/21 (Sun Afternoon)

High O3/CO air over Southern CA. Enhanced O3/CO moving onshore over Northern CA. Enhanced (15-20ppbv/day) background O3 P-L over SF. Low (~5ppbv/day) background O3 P-L over LA

500m RDF FX 00Z 06/22 (Mon Afternoon)

High O3/CO air over Southern CA and into NV. Enhanced O3/CO moving onshore over Northern CA
Enhanced (15-20ppbv/day) background O3 P-L over SF and West of LA.
Enhanced O3 P-L over SF and West of LA associated with 60-80% CONUS PBL Exposure. High CO/O3 associated with IC descent

That's all Folks!!!!

RAQMS Reverse Domain Filling forecasts will continue to be posted by 6:40am (Pacific) @ http://raqms-ops.ssec.wisc.edu/RDF_products/CalNex/RDF/ Go to YYYYMM

Area Forecast Details

Sacramento Valley - Danny Kam (dkam@airquality.org)

Friday

- Early AM: Onshore SW10-15kt over Solano Cnty from N. and E. Bay toward S. SV; profiler in SE Sac Cnty picks up SW10kt, upvalley outflow; eddy on sfc obs 10mi west of Davis
- Late AM: Transport flow from E. Bay and partial S. Bay continues; steady stream of upvalley outflow from Sac Cnty before upslope flow develops
- PM: Onshore flow from E. Bay continues, Sac Cnty at SW8kt, outflow toward NNE, gradually outflow toward NE by late afternoon; SE to SW 5kt for other valley locations, outflow to respective upslope direction
- Late aftn: Bay Area wind shy of 20kt; Sac Cnty reaches SW10kt
- Evening: Onshore continues
- Few cirrus
- Max aftn temp 28C; good air quality

- AM PBL 500; PM PBL 5,000-7,000ft
- MBL below 500ft increases to 1,000ft

Saturday

- AM: Still good onshore flow from N. Bay and E. Bay toward SV; Sac Cnty at 8kt, upvalley outflow; eddy along I-80 west of Davis at 15Z
- Afternoon: Weaker onshore allows better push from Bay Area toward the foothills; flow from Sac Dtn to Cool should be ideal in afternoon between 21Z and 00Z; a bit of calming early aftn also allows brief buildup before slightly increased onshore flow in late afternoon; SW3kt in early aftn and WSW5kt in late aftn for Sac Cnty; light and variable for N. SV due to sfc divergence
- Evening: light onshore continues from N. Bay to Sac Cnty
- AM PBL 1,500ft, PM PBL 3,000 to 5,000ft
- MBL 1,000ft
- Cirrus north of forecast area in AM, few cirrus/altocumulus in afternoon (7.4 to 8.4km)
- Max aftn temp 26C; good air quality

Sunday

- AM: Light onshore decreases, Sac Cnty to become calm after early morning SW flow; N5kt wind along W. SV
- PM: Bay Area onshore increases a bit, clips into lower Sac Cnty by late afternoon and heads toward SJV; light NW flow Sac Cnty initially outflow toward foothills, outflow to SJV in late aftn with stronger wind; lighter N. wind along W. SV, light NW develops in the rest of the valley
- AM PBL below 500ft; PM PBL 3,000 to 6,000ft, lower in N. SV
- MBL 500ft
- Clear, few cirrus in afternoon
- Max aftn temp 29C; moderate air quality

Monday

- Some light north wind, onshore at night on Monday
- Mostly clear
- Max aftn temp: 30C; moderate air quality

Extended

- Very light wind on Tuesday with some onshore, stronger onshore flow on Wednesday afternoon
- Max aftn temp warms to low 30C; moderate air quality

Sacramento Trajectory (Fri)

Sacramento Trajectory (Sat)

Sacramento Trajectory (Sun)

San Joaquin Valley - Jon Klassen (Jon.Klassen@valleyair.org)

Friday June 18

Surface Winds: The surface observations this morning show light NW flow to calm conditions throughout the SJV. The wind profilers also show similar conditions above the surface. CANSAC shows calm conditions for later this morning inflow via the Altamont and Pacheco passes. Inflow is projected to increase in the afternoon hours with a strengthening W onshore flow.

Boundary Layer Mixing: Profilers do indicate temperature inversions in the SJV this morning. CANSAC indicates that mixing should improve to 2,500 feet to 3,500 feet across the SJV.

Air Quality: Good to Moderate ozone air quality is expected across the SJV.

Saturday June 19

Surface Winds: CANSAC shows similar conditions to Friday, but with a more defined NW flow as the day progresses. Outflow over the Tehachapi by the late hours of the day.

Boundary Layer Mixing: CANSAC indicates that mixing should improve to 2,500 feet to 3,500 feet across the SJV.

Air Quality: Good to Moderate ozone air quality is expected across the SJV.

Sunday June 20

Surface Winds: CANSAC again shows a light NW flow throughout the day, with a light inflow into the northern SJV from the Sacramento area by the afternoon. Typical outflow over the Tehachapi Pass.

Boundary Layer Mixing: CANSAC indicates that mixing should improve to 2,500 feet to 3,500 feet across the SJV.

Air Quality: Good to Moderate ozone air quality is expected across the SJV.

Monday and Tuesday June 21-22

Surface Winds: GFS shows surface winds to be light and from the NW.

Boundary Layer Mixing: Mixing conditions should slightly deteriorate due to building stability.

Air Quality: Expected to have Good to Moderate ozone, with USG ozone possible by Tuesday.

Potential Targets for next Flight Day

The LLNL prescribed burn SW of Tracy is scheduled to continue today and Saturday, given that they are within their prescription.

Central Coast -

(NO FORECAST TODAY)

SoCal Coastal Waters -

(NO FORECAST TODAY)

South Coast Basin - Kevin Durkee (kdurkee@aqmd.gov)

Friday: troughing aloft again today; deeper marine layer - AM low clouds into the valleys; Miramar AM inversion base 2000 ft; eddy; onshore gradients increase; N gradient increases in evening for some gusty winds in LA/Ventura Co. mountains & I-5 corridor & San Bernardino Mtns & deserts - N winds could delay the marine layer overnight; cooler than normal through weekend, especially near coast; ozone mostly moderate

Saturday: troughing aloft continues; deep marine layer & more persistent; widespread AM low clouds coast through valleys, lingering at beaches into afternoon; cooler; N gradient component increases again in evening; ozone mostly good to moderate

Sunday-Tuesday: upper low in Pac NW shifts eastward but persistent trough aloft lingers over So. Cal., although maybe weakening; onshore gradients; may see a couple of degrees of warming each day, but still below normal temps; shrinking marine layer for only patchy morning low clouds in the valleys; mostly moderate ozone but USG possible inland

Wednesday: trough flattens (?); shrinking marine layer; weaker onshore flow; more significant warming; ozone moderate to possible USG inland